

REMARKS/ARGUMENTS

Claims 20-30 are pending in this application, claims 1-19 were previously canceled, and claim 20 has now been amended without adding any new matter.

1. Rejection of Claims 20-30 Under 35 U.S.C. 112, Second Paragraph

Claims 20-30 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicants have now amended independent claim 20 to change the recitation of "the one or more heat-dissipating cores comprising a material with a CTE between the CTE of the individual heat-dissipating cores to which the individual one or more electronic components is attached and the CTE of the heat-dissipating substrate" to -- the one or more heat-dissipating cores comprising a material with a CTE between the CTE of the individual one or more electronic components attached thereto and the CTE of the heat-dissipating substrate --. In addition, Applicants have now amended independent claim 20 to insert the word -- more -- prior "electronic components" to correct a clerical error. Accordingly, applicants believe that claim 20 is now in condition for allowance, and allowance thereof is respectfully requested.

Claims 21-30, which each depend directly from independent claim 20, are believed to be in condition for allowance for at least the above-identified reason. Accordingly, allowance of claims 21-30 is respectfully requested.

2. Rejection of Claims 20-30 Under 35 U.S.C. 103(a)

Claims 20-30 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Krassowski et al. (U.S. Patent No. 6,758,263; hereinafter referred to as "Krassowski") in view of Mishima et al. (Japanese Publication No. JP8186204A; hereinafter referred to as "Mishima"). Applicants respectfully traverse this rejection of claims 20-30, and respectfully request reconsideration for the following reasons.

Independent claim 20 calls for a heat sink device comprising one or more thin, compliant elastomeric layers between the one or more heat-dissipating cores and the heat-dissipating substrate for isolating the heat-dissipating substrate and the one or more heat-dissipating cores from one another.

Applicants believe that Krassowski discloses a heat spreader 14 which includes an anisotropic graphite planar element 16 having a relatively high thermal conductivity in the plane of the planar element 16 along dimensions x and y and having a relatively low thermal conductivity across a thickness 18 of the planar element in a direction z normal to the plane defined by dimensions x and y. Applicants believe that Krassowski discloses a core or insert 22 received in the cavity 20 of the heat spreader 12. However, Krassowski does not appear to teach or suggest a heat sink device with one or more thin, compliant elastomeric layers between the one or more heat-dissipating cores and the heat-dissipating substrate for isolating the heat-dissipating substrate and the one or more heat-dissipating cores from one another. As discussed below, Krassowski also does not appear to teach or suggest a feature of "the thin compliant layer isolating the heat-dissipating substrate and the stud" as stated by the Examiner.

Applicants believe that Mishima teaches away from the present invention of claim 20 in that the "mounting member and heat dissipation part are coupled directly with each other." (See the Abstract of Mishima in the English language.)

In the Office Action mailed on March 3, 2006, on pages 3 and 4, the Examiner provides his reasoning for the rejection of claims 20-30 as follows:

"4. Claims 20-30 are rejected under 35 U.S.C. 103(a), as best understood, as being unpatentable over Krassowski et al. Pat. 6,758,263 in view of Mishima et al. Krassowski discloses a heat sink 12 for dissipating heat from the component 14 comprising: a heat dissipating substrate 16 having an aperture 20 extending from a first side to a second side, a heat dissipating stud 22 made of metal (col. 11, lines 22-30) attached within the aperture 20; the aperture is cylindrical or can be of any shape (col. 11, lines 51-55), the thin compliant layer isolating the heat-dissipating substrate and the stud, the surface of the stud or the aperture can be plated, the fins 36 are also disclosed. Krassowski discloses the claimed invention except the stud

material having the CTE close to the CTE of the electronic component or intermediate between the CTE of the component and the heat dissipating substrate. Mishima discloses the heat sink with the inserted stud with the CTE close to the CTE of the electronic component or intermediate between the CTE of the component and the heat dissipating substrate. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to choose the property of the materials as disclosed by Mishima in the structure disclosed by Krassowski et al. in order to provide optimum heat dissipation and integrity of the structure.” (Underlining added.)

Applicants have carefully reviewed the Office Action currently outstanding, the previous Office Action, the two previously filed amendments, and the prior art of record. Applicants can not determine where Krassowski discloses the feature of “the thin compliant layer isolating the heat-dissipating substrate and the stud” as indicated by the Examiner in the Office Action currently outstanding and reproduced hereinabove.

Applicants note that for several other features related to claim 20 of the present invention, the Examiner has identified various elements disclosed in Krassowski by either a reference numeral or by column and line numbers. However, the Examiner has not provided either a reference numeral or column and line numbers that teaches or suggests the feature of “the thin compliant layer isolating the heat-dissipating substrate and the stud”. Applicants assert that the Examiner has failed to make a *prima facie* case that claim 20 is unpatentable over Krassowski in view of Mishima et al.

Furthermore, Applicants note that the Examiner indicates that “the surface of the stud or the aperture can be plated, the fins 36 are also disclosed.” Applicants respectfully request clarification of the significance of these features, especially if the Examiner asserts that these features relate to the claimed feature of one or more thin, compliant elastomeric layers between the one or more heat-dissipating cores and the heat-dissipating substrate for isolating the heat-dissipating substrate and the one or more heat-dissipating cores from one another.

Applicants believe that neither Krassowski nor Mishima teach or suggest a heat sink device having one or more thin, compliant elastomeric layers between one

or more heat-dissipating cores and a heat-dissipating substrate for isolating the heat-dissipating substrate and the one or more heat-dissipating cores from one another. Accordingly, claim 20 is believed to be in condition for allowance, and allowance thereof is respectfully requested.

Claims 21-30, which depend directly from independent claim 20, are believed to be in condition for allowance for at least the above-identified reasons. Accordingly, allowance of claims 21-30 is respectfully requested.

Conclusion

In light of the amendments and remarks provided herein, applicants respectfully request the timely issuance of a Notice of Allowance.

Respectfully submitted,
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